



U.S. Coast Guard Eleventh District

Fuel Switching in the Eleventh Coast Guard District

Mike Boyes

U.S. Coast Guard Eleventh District

California ARB Maritime Air Quality Working Group

Elihu M. Harris Building, Oakland

April 28, 2010



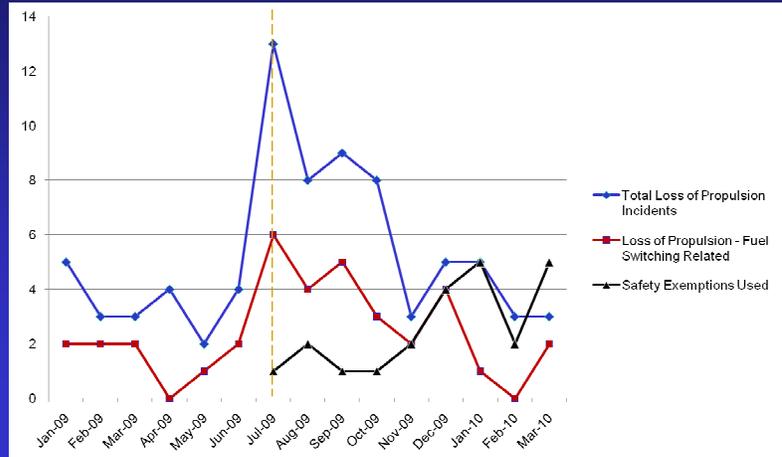
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Loss of Propulsion Casualty Statistics 2009 - 2010

	Total Loss of Propulsion Incidents	Incidents related to Fuel Switching	Safety Exemptions Used
Jan – June 09	3.5 per month	1.5 per month	-
July 09	13	6	1
August 09	8	4	2
September 09	9	5	1
October 09	8	3	1
November 09	3	2	2
December 09	5	4	4
January 10	5	1	5
February 10	3	0	2
March 10	3	2	5
Totals	57	27	23



U.S. Coast Guard Eleventh District Loss of Propulsion Casualty Statistics Comparison JAN 2009 – MAR 2010



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U.S. Coast Guard Eleventh District Loss of Propulsion Casualty Trends

- Slow speed maneuvering (low RPMs)
- Fuel pump/gasket leaks (low fuel pressure)
- Procedural errors

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U.S. Coast Guard Eleventh District ARB and CG Cooperation

- Engaged with ARB early on in the process.
- Developed a communication procedure to ensure open flow of information between the agencies.
- Assisting with the CMA root cause analysis of propulsion loss issues.

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U.S. Coast Guard Eleventh District CG Marine Safety Notice

Fuel Systems and Fuel Switching Between Residual Fuel Oil and Marine Distillates

Coast Guard Marine Safety Notice
May 26, 2009

Sector San Francisco:
<http://homeport.uscg.mil/sanfrancisco>

U.S. COAST GUARD MARINE SAFETY NOTICE
May 26, 2009

Fuel Systems and Fuel Switching Between Residual Fuel Oil and Marine Distillates

The purpose of this Marine Safety Notice is to increase awareness and provide general guidance on fuel systems and fuel switching safety in an effort to prevent propulsion losses. A recent Coast Guard study and review of marine casualties indicate that lack of maintenance and testing of certain systems, including fuel oil systems, is one of the leading causes of propulsion failures. Proper procedures, training, and maintenance are essential for vessels to safely switch between heavy intermediate fuel oils and marine distillates. Additionally, vessel operators need to have a good understanding of their system requirements and limitations, and determine if any modifications may be necessary to safely switch between intended fuels.

Managing Risk

In order to manage risk and improve safety, vessel owners and operators should:

- Consult engine and boiler manufacturers for fuel switching guidance;
- Consult manufacturers to determine if system modifications or additional safeguards are necessary for intended fuels;
- Develop detailed fuel switching procedures;
- Establish a fuel system inspection and maintenance schedule;
- Ensure system pressure and temperature alarms, flow indicators, filter differential pressure transmitters, etc., are all operational;
- Ensure system seals, gaskets, flanges, fittings, brackets and supports are maintained;
- Ensure a detailed system diagram is available;
- Conduct initial and periodic crew training;
- Exercise tight control when possible over the quality of the fuel oils received; and
- Complete fuel switching well offshore prior to entering restricted waters or traffic lanes.

Vessels operating in California waters

The state of California Air Resources Board (ARB) has a proposed regulation under review that, if approved as expected, will require exempt gray vessels to use low sulfur marine distillates in main engines, auxiliary engines, and auxiliary boilers beginning on July 1, 2009 in regulated California waters. The state defines regulated waters as three to 24 nautical miles from the baseline. In light of this state of California regulatory initiative, the Coast Guard anticipates an increase in heavy fuel fuel switching and urges industry to take proactive measures to improve fuel switching safety in an effort to prevent propulsion losses and equipment casualties.

The California ARB regulatory *abstracts and contact information for related questions* can be found via the following link:

Marine Notice 2009-1:
http://www.arb.ca.gov/aqm/marinesafety/abstracts/marinesafety2009_1.pdf

Marine Notice 2009-2:
http://www.arb.ca.gov/aqm/marinesafety/abstracts/marinesafety2009_2.pdf

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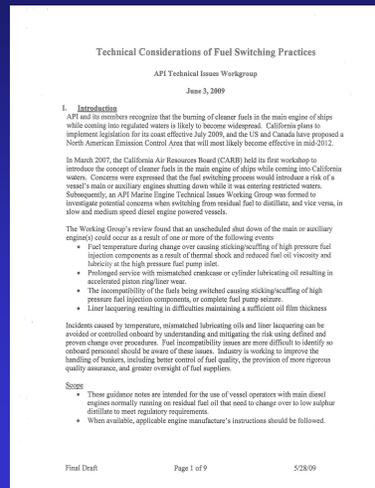
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API Technical Guide

Technical Considerations for Fuel Switching Practices

API Technical Issues Workgroup
June 3, 2009

Office of Investigations and Analysis:
<http://marineinvestigations.us>



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Fuel Switching Risk Mitigation

- Closely monitoring loss of propulsion incidents and tracking statistics as it relates to fuel switching.
- Maintaining close communication with owners and operators to ensure awareness of the fuel switching regulation.
 - *Example:* Heavy seas and high winds (excess of 40+ knots) last week, April 20th – 21st, prompted release of a Marine Safety Notice ensuring vessels were aware of the safety exemption provided in the regulation.
- Focused on education and awareness of the safety exemption and essential modifications exemption from the ARB regulation.

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Questions?